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ATTORNEY DOCKET No. SANA:006

IN THE CLAIMS

*The status of the claims as presently amended is as follows:*

1. (*Currently Amended*) An exhaust gas purifying system comprising:
  - an oxidation catalyst disposed in an exhaust passage of an engine;
  - a filter disposed in said exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas;
  - a first additional fuel control means which injects a first additional fuel into a cylinder during a forced regeneration of said filter and after a main fuel injection in said engine;
  - a second additional fuel control means which supplies a second additional fuel to said oxidation catalyst after a rise in temperature of said oxidation catalyst up to an activation temperature of the catalyst and after the injection of said first additional fuel;
  - a temperature detecting means for detecting an outlet temperature of said oxidation catalyst;
  - an engine speed detecting means for detecting an engine speed of said engine;
  - a load detecting means for detecting a load of said engine; and
  - a second additional fuel supply quantity setting means which sets a supply quantity of said second additional fuel in accordance with information provided from said revolution detecting means and said load detecting means and which changes the second additional fuel supply quantity in accordance with information provided from said temperature detecting means,

wherein said second additional fuel supply quantity setting means provides first and second additional fuel quantity setting values, the second additional fuel quantity setting value being smaller than the first additional fuel quantity setting value, and

wherein the second additional fuel supply quantity setting means applies the first additional fuel quantity setting value when the oxidation catalyst outlet temperature is lower than a predetermined value, and applies the second additional fuel quantity setting value when the oxidation catalyst outlet temperature is at or greater than the predetermined value.

2. (*Currently Amended*) An exhaust gas purifying system according to claim 1, comprising:

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an oxidation catalyst disposed in an exhaust passage of an engine;  
a filter disposed in said exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas;  
a first additional fuel control means which injects a first additional fuel into a cylinder during a forced regeneration of said filter and after a main fuel injection in said engine;  
a second additional fuel control means which supplies a second additional fuel to said oxidation catalyst after a rise in temperature of said oxidation catalyst up to an activation temperature of the catalyst and after the injection of said first additional fuel;  
a temperature detecting means for detecting an outlet temperature of said oxidation catalyst;  
an engine speed detecting means for detecting an engine speed of said engine;  
a load detecting means for detecting a load of said engine; and  
a second additional fuel supply quantity setting means which sets a supply quantity of said second additional fuel in accordance with information provided from said revolution detecting means and said load detecting means and which changes the second additional fuel supply quantity in accordance with information provided from said temperature detecting means,

wherein said second additional fuel supply quantity setting means comprises:

a first fuel injection quantity map in which a fuel supply quantity is set;

a second fuel injection quantity map in which a fuel supply quantity is set smaller than in said first fuel injection quantity map; and

a switching means which, when said oxidation catalyst outlet temperature has become lower than a predetermined value, sets said first fuel injection quantity map as a map for setting said second additional fuel supply quantity, and which, when said oxidation catalyst outlet temperature has become a value of not smaller than the predetermined value, makes switchingswitches from said first fuel injection quantity map to said second fuel injection quantity map.

3. (Original) An exhaust gas purifying system according to claim 2, wherein said first fuel

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injection quantity map is an increment map in which the fuel supply quantity of said second additional fuel to be injected into said cylinder is set relatively large, and said second fuel injection quantity map is a decrement map in which the second additional fuel supply quantity is set relatively small.

4. (Original) An exhaust gas purifying system according to claim 3, wherein said second additional fuel control means injects fuel into said cylinder to supply said oxidation catalyst with the fuel.

5. (Original) An exhaust gas purifying system according to claim 3, wherein said second additional fuel control means injects fuel onto said exhaust passage to add the fuel to said oxidation catalyst.

6. (Currently Amended) An exhaust gas purifying system according to claim 1, wherein said second additional fuel supply quantity setting means comprises:

a basic map in which ~~a basic~~ the first additional fuel supply quantity value is stored; and  
a correction means which, in accordance with the oxidation catalyst outlet temperature, corrects the fuel supply quantity obtained from said basic map based on the second additional fuel supply quantity value, and  
~~wherein the fuel supply quantity corrected by said correction means is set as the second additional fuel supply quantity.~~

7. (Currently Amended) An exhaust gas purifying system ~~according to claim 1, comprising:~~  
an oxidation catalyst disposed in an exhaust passage of an engine;  
a filter disposed in said exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas;  
a first additional fuel control means which injects a first additional fuel into a cylinder during a forced regeneration of said filter and after a main fuel injection in said engine;  
a second additional fuel control means which supplies a second additional fuel to said

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oxidation catalyst after a rise in temperature of said oxidation catalyst up to an activation temperature of the catalyst and after the injection of said first additional fuel;

a temperature detecting means for detecting an outlet temperature of said oxidation catalyst;

an engine speed detecting means for detecting an engine speed of said engine;

a load detecting means for detecting a load of said engine; and

a second additional fuel supply quantity setting means which sets a supply quantity of said second additional fuel in accordance with information provided from said revolution detecting means and said load detecting means and which changes the second additional fuel supply quantity in accordance with information provided from said temperature detecting means.

wherein said second additional fuel supply quantity setting means comprises:

a first fuel injection quantity map in which the fuel supply quantity is set rather large;

a second fuel injection quantity map in which the fuel supply quantity is set smaller than in said first fuel injection quantity map;

a third fuel injection quantity map in which the fuel injection quantity is set still larger than in said first fuel injection quantity map; and

a switching means which selects said third fuel injection quantity map when the oxidation catalyst outlet temperature is lower than a first predetermined value, selects said first fuel injection quantity map when the oxidation catalyst outlet temperature is not lower than the first predetermined value and lower than a second predetermined value, and selects said second fuel injection quantity map when the oxidation catalyst outlet temperature is not lower than the second predetermined value.

8. (Original) An exhaust gas purifying system according to claim 1, further comprising a forced regeneration start determining means which determines whether a forced regeneration of said filter is to be started or not.

9. (Currently Amended) An exhaust gas purifying system according to claim 8, wherein:

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wherein said forced regeneration start determining means has a deposition quantity estimating means for estimating or calculating a deposition quantity of a particular matter deposited on said filter, and

wherein when the deposition quantity estimated or calculated by said deposition quantity estimating means reaches a value of not smaller than a predetermined value, the start of a forced regeneration of said filter is determined by said forced regeneration start determining means.

10. (Currently Amended) An exhaust gas purifying system according to claim 9, comprising:

an oxidation catalyst disposed in an exhaust passage of an engine;

a filter disposed in said exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas;

a first additional fuel control means which injects a first additional fuel into a cylinder during a forced regeneration of said filter and after a main fuel injection in said engine;

a second additional fuel control means which supplies a second additional fuel to said oxidation catalyst after a rise in temperature of said oxidation catalyst up to an activation temperature of the catalyst and after the injection of said first additional fuel;

a temperature detecting means for detecting an outlet temperature of said oxidation catalyst;

an engine speed detecting means for detecting an engine speed of said engine;

a load detecting means for detecting a load of said engine;

a second additional fuel supply quantity setting means which sets a supply quantity of said second additional fuel in accordance with information provided from said revolution detecting means and said load detecting means and which changes the second additional fuel supply quantity in accordance with information provided from said temperature detecting means;

a forced regeneration start determining means which determines whether a forced regeneration of said filter is to be started or not; and

further comprising an absolute pressure detecting means for detecting an absolute

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pressure on an inlet side of said filter and a differential pressure detecting means for detecting a differential pressure between an inlet-side pressure and an outlet-side pressure of said filter,

wherein said forced regeneration start determining means has a deposition quantity estimating means for estimating or calculating a deposition quantity of a particular matter deposited on said filter, and

wherein said deposition quantity estimating means estimates or calculates the deposition quantity of the particulate matter on the basis of information provided from both said absolute pressure detecting means and said differential pressure detecting means.

11. (*Currently Amended*) An exhaust gas purifying system according to claim 1, further comprising:

an oxidation catalyst disposed in an exhaust passage of an engine;

a filter disposed in said exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas;

a first additional fuel control means which injects a first additional fuel into a cylinder during a forced regeneration of said filter and after a main fuel injection in said engine;

a second additional fuel control means which supplies a second additional fuel to said oxidation catalyst after a rise in temperature of said oxidation catalyst up to an activation temperature of the catalyst and after the injection of said first additional fuel;

a temperature detecting means for detecting an outlet temperature of said oxidation catalyst;

an engine speed detecting means for detecting an engine speed of said engine;

a load detecting means for detecting a load of said engine;

a second additional fuel supply quantity setting means which sets a supply quantity of said second additional fuel in accordance with information provided from said revolution detecting means and said load detecting means and which changes the second additional fuel supply quantity in accordance with information provided from said temperature detecting means;

an oxygen mass flow rate detecting means for detecting or calculating a mass flow rate

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of oxygen fed to said filter; and

a regeneration end determining means for determining a regeneration end of said filter in accordance with information provided from said oxygen mass flow rate detecting means and upon arrival of an integrated value of said oxygen mass flow rate at a predetermined value during a forced regeneration of said filter.

12. (*Original*) An exhaust gas purifying system according to claim 1, further comprising a regeneration end determining means for determining a regeneration end of said filter upon lapse of a predetermined time from the start of said forced regeneration.

13. (*Original*) An exhaust gas purifying system according to claim 1, wherein said engine is a diesel engine.

14. (*Currently Amended*) An exhaust gas purifying method using an oxidation catalyst disposed in an exhaust passage of an engine and a filter disposed in said exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas, and wherein a first additional fuel is injected into a cylinder during a forced regeneration of said filter and after a main fuel injection in said engine, and a second additional fuel is supplied to said oxidation catalyst after a rise in temperature of said oxidation catalyst up to an activation temperature of the catalyst and after the injection of said first additional fuel, said method comprising the steps of:

detecting an outlet temperature of said oxidation catalyst, an engine speed of said engine, and a load of said engine; and

setting a supply quantity of said second additional fuel on the basis of said engine speed and said load and changing the second additional fuel supply quantity on the basis of said outlet temperature of the oxidation catalyst,

wherein the setting step includes applying a first additional fuel quantity setting value when the oxidation catalyst outlet temperature is lower than a predetermined value, and applying a second additional fuel quantity setting value, which is lower than the first additional

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fuel quantity setting value, when the oxidation catalyst outlet temperature is at or greater than the predetermined value.

15. (Original) An exhaust gas purifying method according to claim 14, wherein said second additional fuel is injected into the cylinder of said engine.

16. (Original) An exhaust gas purifying method according to claim 14, wherein said second additional fuel is injected onto the exhaust passage of said engine.

17. (Currently Amended) An exhaust gas purifying method ~~according to claim 14, further using an oxidation catalyst disposed in an exhaust passage of an engine and a filter disposed in said exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas, and wherein a first additional fuel is injected into a cylinder during a forced regeneration of said filter and after a main fuel injection in said engine, and a second additional fuel is supplied to said oxidation catalyst after a rise in temperature of said oxidation catalyst up to an activation temperature of the catalyst and after the injection of said first additional fuel, said method comprising the steps of:~~

~~detecting an outlet temperature of said oxidation catalyst, an engine speed of said engine and a load of said engine;~~

~~setting a supply quantity of said second additional fuel on the basis of said engine speed and said load and changing the second additional fuel supply quantity on the basis of said outlet temperature of the oxidation catalyst;~~

determining whether an integrated value of an oxygen mass flow rate from the time-point of arrival of the temperature of said filter at a predetermined temperature during execution of said forced regeneration has reached a predetermined value or not; and

terminating said forced regeneration upon arrival of said integrated value of the oxygen mass flow rate at a predetermined value.